REMARKS

Careful consideration has been given by the applicants to the Examiner's comments and rejection of the claims, as set forth in the outstanding Office Action, and favorable reconsideration and allowance of the application, as amended, is earnestly solicited.

Applicants note the Examiner's formal objection to Claim 9, with respect to terminology, under 35 U.S.C. §112, second paragraph, concerning "taper", and in order to clearly obviate this particular informality, applicants previously amended Claim 9 to indicate that, in essence, the annular channel 101 extends at an angle towards the valve piston 76. This is clearly illustrated in Figure 5 of the drawings, and described in the specification on Page 16, Lines 6 through 22. In essence, as clearly shown in the drawings, and particularly Figure 5, the channel 101 extends at an angle or possibly at a "taper", although the last-mentioned term may have been deemed somewhat awkward relative to the piston 76. This terminology has now been eliminated from Claim 9, thereby obviating the rejection of Claim 9 on formal grounds.

Accordingly, in order to clearly meet the Examiner's requirements in that regard, applicants have amended the terminology in Claim 9 to eliminate the objectionable terms and, in essence, to indicate that "the annular channel is formed between a first sealing portion and a second sealing portion" rather than indicating the annular channel extending at an angle towards the valve piston.

The amended terminology is clearly substantiated by the present specification having reference to Page 16, lines 9 and 10. This should clearly obviate the Examiner's formal rejection in connection therewith.

This particular terminology also clearly distinguishes over previously cited Dantlgraber, U.S. Patent No. 4,132,506, as referred to by the Examiner, inasmuch as this publication does not provide that type of structure.

Applicants further note the Examiner's rejection of Claims 1-8 under 35 U.S.C. §102(b) as being anticipated by Dantlgraber, of record, as detailed in the Office Action.

However, applicants respectfully submit that the present invention clearly and patentably distinguishes over Dantlgraber. However, in order to more clearly distinctions over Dantlgraber, Claim 1 has been amended to indicate that the opposed second measuring surface is that of a volumetric flow control valve, referring to line 6 of Claim 1, indicating that this distinguishes the volumetric control valve which is identified as element 26 from a further control valve, identified by element 25.

Moreover, Claim 1 has also been further limited by incorporating that the pressure chamber has the form of an annular chamber with a first delimiting portion and a second delimiting portion, wherein each of these portions has an oppositely oriented surface of equally sized dimensions, and in which the annular chamber comprises a connection to a working pressure line for preventing any force from displacing a piston of the volumetric control valve, which is arranged separately from an actuating pressure connection. It must be emphasized that pursuant to the present invention, as claimed, the special function of the annular chamber incorporates the concept that the annular chamber and the actuating pressure connection A are in contrast with Dantlgraber, independent of each other, and this is clearly expressed in amended Claim 1, as presented herewith.

The foregoing structure and operative function derived thereby cannot in any manner be ascertained from the art of record, as represented by Dantlgraber, as traversed hereinbelow.

Although Dantlgraber discloses a volumetric flow control valve comprising a pressure chamber having a delimiting portion corresponding to the size of a spring cap and a further delimitating portion corresponding to a control surface, contrary to the present invention as claimed, Dantlgraber fails to disclose any subject matter with regard to the size of the two delimiting portions.

Moreover, Dantlgraber is adapted to generate an axial force for displacing the control surface, which results in discharging a pressure chamber into reservoir, whereas in contrast, the present invention does not provide any connection between the annular chamber and a reservoir. Moreover, in Dantlgraber, the hydraulic system having a pressure chamber, particularly, with regard to its volumetric control valve, which is not hydraulically balanced, whereby a pressure change within the pressure chamber would cause a piston movement, unlike the present invention.

In essence, Claim 1, as amended herein, and also the valve block structure of Claim 6, are, thus, completely novel in view of Dantlgraber, the latter of which discloses a pressure and volume flow control for a variable pump, including two control valves which are separately arranged. Hereby, in Dantlgraber, the volumetric flow control valve comprises an axially movable piston, which is actuated by a spring, and with the piston being disposed between a pressure chamber and an end location of a spring, whereby the pressure chamber is equipped with a control surface as a first delimiting portion in a facial area of a piston as a second delimiting portion. Dantlgraber's hydraulic system is subject to the structural and functional drawback that the volumetric flow control valve only comprises a single pressure chamber, which is also connected to a pilot port of a pilot cylinder, thereby enabling the pilot cylinder to be readily contaminated, inasmuch as particles, for instance, which are rubbed off by the

piston of the connected volumetric control valve, can be conveyed towards the part of the pilot cylinder by an uncontrolled fluid flow.

Consequently, in order to obviate the disadvantageous limitation and avoid any contaminants being transported towards the cylinder system, the invention is directed to the provision of a hydraulic control device with a volumetric control device, which incorporates means to prevent a contamination of a connection towards an adjusting device.

Claim 1, as amended herein, and also the remaining claims, clearly provides these patentable features, not at all disclosed in Dantlgraber.

Moreover, the following define additional aspects of the invention:

A further connection in the region of the pressure chamber provides a permanent connection of said pressure chamber with a working line, wherein Fig. 2 and Fig. 5 show clearly that a pressure chamber 101 is separated from a successive pressure chamber 80, and, in particular, from the actuating pressure connection due to a first sealing portion 103. A defined and uniquely intended leakage path prevents a measuring surface 91, which abuts a second sealing portion 102 by being contaminated through deleterious particles or contaminants from a second pressure line 39, whereby for example, these deleterious particles can be created by abrasion within a volumetric flow throttle 14 or from within a load being connected with the hydraulic pump 3. The pressure chamber 101 contains a static amount of hydraulic fluid due to a counterpressure line 87, whereby the inventive pressure chamber 45, 101 does not serve as a chamber that is to be discharged into a reservoir or into a port connecting an adjusting device. To the contrary, the inventive pressure chamber 45, 101 is connected to chamber 91 for collecting spoiled (contaminated) hydraulic fluid. This last-mentioned chamber 91 is also closed with respect to a reservoir by a plug 93, so that the

spoiled or contaminated hydraulic fluid cannot be discharged into the reservoir during operation of the system. However, notwithstanding, it is an advantage of the present invention to provide an intended leakage path for preventing a contamination of the measuring surface of chamber 91, resulting in a permanent rinse system of the measuring surface without any pressure changes occurring within the pressure chamber 45, 101 of the volumetric control valve. This hydraulic balance of the pressure chamber 45, 101 is attained by the pressure chamber, which is formed as an annular chamber with a first delimiting portion and a second delimiting portion, each having a surface which is oppositely oriented and of equal size. Hereby, the annular chamber includes a connection to a working pressure line, i.e., the counterpressure line for preventing any force which would displace a piston of the volumetric control valve.

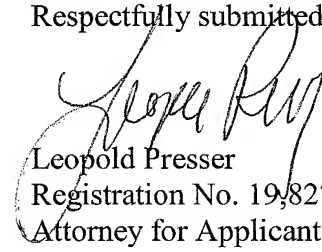
Due to the above-mentioned controlled intended leakage path, the hydraulic fluid that has been contaminated by deleterious particles, is collected inside a further pressure chamber 90 adjacent to the measuring surface 91 without generating a pressure gradient within the pressure chamber. A plug 95 seals this pressure chamber 90, whereby, consequently, the connecting port A, which is to be interconnected with an adjusting device, cannot be contaminated by fluid that is contaminated.

In addition to the foregoing arguments, which fully support the patentable distinctions in view of Dantlgraber, applicants also refer to Page 2, line 27 through Page 3, line 21 of the present specification, wherein the further advantageous aspects of the invention are clearly and unambiguously described, as claimed herein. Furthermore, the configuration of a counterpressure channel, which extends as a longitudinal bore in the interior of the piston and which is connected by a connective bore to the pressure chamber, is also clearly described in

the present specification, having reference to Page 3, line 23 through Page 4, line 2 of the disclosure, and the related details pertaining to the accompanying drawing figures, as also claimed in the presently pending claims.

In summation, applicants respectfully submit that predicated upon the foregoing amendments to the claims, which are deemed to be fully responsive to the Examiner's grounds of rejection, and which clearly support the patentable distinctions set forth in the amended claims, the application is considered to be in condition for allowance, and the early and favorable reconsideration and allowance of the application by the Examiner is earnestly solicited. However, in the event that the Examiner has any queries concerning the instantly submitted Amendment, applicants' attorney respectfully requests that he be accorded the courtesy of possibly a telephone conference to discuss any matters in need of attention.

Respectfully submitted,



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